

Recovery Plan Action Status

Plan Name: Recovery Plan for Robust Spineflower (*Chorizanthe robusta robusta*)

Plan Status: Final

Plan Date: 20-Dec-04

Lead Agency: USFWS

Lead Office: Ventura Fish And Wildlife Office

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Species	Action Priority #	Action #	Action Description	Action Status	Est. Initiation Date	Est. Completion Date	Responsible Parties	Work Type	Labor Type	Action Comments
Robust (incl. Scotts Valley) spineflower (<i>Chorizanthe robusta</i> (incl. vars. <i>robusta</i> and <i>hartwegii</i>))	1	1.1	Inform landowners	Ongoing Current	FY 2000 - FY 2004		U.S. Fish and Wildlife Service, Private landowners	Management: Habitat Maintenance and Manipulation	Contract	City of Santa Cruz has informed us that the new landowner of the Branciforte parcel of <i>Chorizanthe robusta</i> var. <i>robusta</i> will implement removal of Tree of Heaven (<i>Ailanthus altissima</i>). (July 29, 2010)
Robust (incl. Scotts Valley) spineflower (<i>Chorizanthe robusta</i> (incl. vars. <i>robusta</i> and <i>hartwegii</i>))	2	1.2	Coordinate with jurisdictional agencies	Ongoing Current			Santa Cruz County, California, City of Santa Cruz, U.S. Fish and Wildlife Service, California Department of Fish and Game, Private landowners	Work type not yet selected	Labor type not yet selected	City of Santa Cruz has informed us that the new landowner of the Branciforte parcel of <i>Chorizanthe robusta</i> var. <i>robusta</i> will implement removal of Tree of Heaven (<i>Ailanthus altissima</i>). (July 29, 2010)
Robust (incl. Scotts Valley) spineflower (<i>Chorizanthe robusta</i> (incl. vars. <i>robusta</i> and <i>hartwegii</i>))	2	1.3	Establish protection agreements or acquire habitat	Partially Complete	FY 2000 - FY 2004		Santa Cruz County, California, City of Santa Cruz, Private landowners, Land Conservancy of Santa Cruz County	Acquisition: Fee Title	Labor type not yet selected	1. 469 acres designated as critical habitat in 2002. 2. Buena Vista site acquired by the Ellicott Slough National Wildlife Refuge in ~2005

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Robust (incl. Scotts Valley) spineflower (Chorizanthe robusta (incl. vars. robusta and hartwegii))	2	2.1	Eliminate, minimize threats on private lands, with monitoring	Not Started			California Department of Fish and Game, Private landowners, Land Conservancy of Santa Cruz County	Work type not yet selected	Labor type not yet selected	City of Santa Cruz has informed us that the new landowner of the Branciforte parcel of Chorizanthe robusta var. robusta will implement removal of Tree of Heaven (Ailanthus altissima). (July 29, 2010) Management plan should go into effect with development.
Robust (incl. Scotts Valley) spineflower (Chorizanthe robusta (incl. vars. robusta and hartwegii))	2	2.2	Eliminate, minimize threats on park and refuge lands, with monitoring	Ongoing Current	FY 1995 - FY 1999		California Department of Parks and Recreation, City of Santa Cruz, National Park Service, U.S. Fish and Wildlife Service, California Department of Fish and Game	Management	Internal Field Assistance, Species Expert	1. Sunset and Manresa State Beach populations are monitored by CA State Parks 2. Pogonip Park populations have been monitored by Sandra Baron for 10 years 3. Ellicott and Buena Vista populations are monitored by the Refuge

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Robust (incl. Scotts Valley) spineflower (Chorizanthe robusta (incl. vars. robusta and hartwegii))	2	3.1	Clarify taxonomic identity of populations	Partially Complete	FY 2000 - FY 2004		University of California, U.S. Fish and Wildlife Service	Research: Genetics	Contract	1. Point Reyes populations omitted. Have been identified as woolly headed spineflower (Chorizanthe cuspidata var. villosa), eliminating 10,000+ plants that were thought to be C. robusta var. robusta. 2. Genetic study by Brinegar and Baron (2009) indicates that C. pungens/C. robusta complex is genetically very similar, and that taxonomic revision to include all varieties of this complex as two varieties of C. pungens may be warranted in the future.
Robust (incl. Scotts Valley) spineflower (Chorizanthe robusta (incl. vars. robusta and hartwegii))	2	3.2	Investigate life history and population characteristics	Partially Complete	FY 2000 - FY 2004		University of California, U.S. Fish and Wildlife Service, California Department of Fish and Game	Work type not yet selected	Graduate Student	1. Baron, Sandra. 2002. Herbivory and an endangered plant: can a limited population handle the pressure? Master's thesis, U.C. Santa Cruz, California. 2. Murphy, Kathryn Ann. 2003. Pollination ecology of the robust spineflower in Santa Cruz County. Masters thesis, California State University, San Jose. 3. Baron, S. and Bros, S.M. 2005. Herbivory and the endangered robust spineflower (Chorizanthe robusta var. robusta.). Madrono 52: 46-52

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Robust (incl. Scotts Valley) spineflower (Chorizanthe robusta (incl. vars. robusta and hartwegii))	2	3.3	Determine habitat characteristics.	Partially Complete	FY 2006		University of California, U.S. Fish and Wildlife Service, California Department of Fish and Game	Management: Habitat Maintenance and Manipulation	Contract	1. Sandra Baron has monitored and implemented management actions at the Pogonip Park site, with positive results. The future of these actions is uncertain.
Robust (incl. Scotts Valley) spineflower (Chorizanthe robusta (incl. vars. robusta and hartwegii))	2	3.4	Determine management actions to maintain optimal habitat conditions	Partially Complete	FY 2006		University of California, U.S. Fish and Wildlife Service, California Department of Fish and Game	Management: Habitat Maintenance and Manipulation	Labor type not yet selected	see 3.3
Robust (incl. Scotts Valley) spineflower (Chorizanthe robusta (incl. vars. robusta and hartwegii))	2	3.5	Monitor populations	Ongoing Current	FY 1995 - FY 1999		California Department of Parks and Recreation, University of California, City of Santa Cruz, U.S. Fish and Wildlife Service, California Department of Fish and Game	Management: Population Monitoring	Internal Field Assistance, Species Expert, Volunteer	1. State Parks monitors at Sunset State Beach on a 3-year interval. 2. City of Santa Cruz population is being monitored on an occasional basis. 3. State Parks is also monitoring Manresa State Beach 4. Sandy Baron has been monitoring the Pogonip Park populations for ~10 years. 5. The Refuge should be monitoring the Ellicott and Buena Vista Populations.
Robust (incl. Scotts Valley) spineflower (Chorizanthe robusta (incl. vars. robusta and hartwegii))	2	4.1	Locate appropriate habitat for outplanting	Not Started			U.S. Fish and Wildlife Service, California Department of Fish and Game	Work type not yet selected	Labor type not yet selected	
Robust (incl. Scotts Valley) spineflower (Chorizanthe robusta (incl. vars. robusta and hartwegii))	2	4.2	Conduct experimental habitat enhancement	Partially Complete	FY 2006		U.S. Fish and Wildlife Service, California Department of Fish and Game	Work type not yet selected	Labor type not yet selected	see 3.3
Robust (incl. Scotts Valley) spineflower (Chorizanthe robusta (incl. vars. robusta and hartwegii))	2	4.3	Apply appropriate habitat enhancement techniques	Not Started			U.S. Fish and Wildlife Service, California Department of Fish and Game	Work type not yet selected	Labor type not yet selected	see 3.3

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Robust (incl. Scotts Valley) spineflower (Chorizanthe robusta (incl. vars. robusta and hartwegii))	2	4.4	Conduct propagation experiments to develop material	Not Started			U.S. Fish and Wildlife Service, California Department of Fish and Game	Work type not yet selected	Labor type not yet selected	
Robust (incl. Scotts Valley) spineflower (Chorizanthe robusta (incl. vars. robusta and hartwegii))	2	4.5	Conduct experimental introductions	Not Started			U.S. Fish and Wildlife Service, California Department of Fish and Game	Work type not yet selected	Labor type not yet selected	
Robust (incl. Scotts Valley) spineflower (Chorizanthe robusta (incl. vars. robusta and hartwegii))	2	4.6	Develop protocol to guide introductions	Not Started	FY 2009		University of California, U.S. Fish and Wildlife Service	Work type not yet selected	Labor type not yet selected	
Robust (incl. Scotts Valley) spineflower (Chorizanthe robusta (incl. vars. robusta and hartwegii))	2	4.7	Conduct large-scale introductions	Not Started			U.S. Fish and Wildlife Service, California Department of Fish and Game	Work type not yet selected	Labor type not yet selected	
Robust (incl. Scotts Valley) spineflower (Chorizanthe robusta (incl. vars. robusta and hartwegii))	2	4.8	Monitor newly established populations	Not Started			U.S. Fish and Wildlife Service, California Department of Fish and Game	Work type not yet selected	Labor type not yet selected	
Robust (incl. Scotts Valley) spineflower (Chorizanthe robusta (incl. vars. robusta and hartwegii))	3	5.1	Redefine recovery criteria	Ongoing Current	FY 2009		U.S. Fish and Wildlife Service, California Department of Fish and Game	Work type not yet selected	Labor type not yet selected	Recommended revisions have been outlined in the 5-year review.
Robust (incl. Scotts Valley) spineflower (Chorizanthe robusta (incl. vars. robusta and hartwegii))	3	5.2	Update management and recovery guidelines	Ongoing Current	FY 2009		U.S. Fish and Wildlife Service, California Department of Fish and Game	Work type not yet selected	Labor type not yet selected	Recommended revisions have been outlined in the 5-year review.

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Robust (incl. Scotts Valley) spineflower (Chorizanthe robusta (incl. vars. robusta and hartwegii))	3	6	Outreach program	Unknown			California Department of Parks and Recreation, City of Santa Cruz, U.S. Fish and Wildlife Service, California Department of Fish and Game	Work type not yet selected	Labor type not yet selected	We have made contact with Aptos High School, hoping to establish a Schoolyard Habitat program there. (Freedom population). Met with the AP biology teacher there to inform him of the location and biology of the species. He hoped to incorporate information into his class.